What is Claimed is:

1. An optical disk device comprising:

a light source which emits light; and

light converging means of, in each of signal mark forming regions, each of lands, or each of grooves of an optical disk, converging the light from said light source onto a signal surface of said optical disk with selectively positioning a signal mark at any one of plural positions which are arranged in a direction that is substantially perpendicular to tracks, each of said signal mark forming regions surrounded by adjacent two of boarder lines which are between two said tracks on the signal surface of said optical disk, and which are substantially parallel to said tracks, and each of which substantially divides an area between adjacent tracks in two parts.

2. An optical disk device according to claim 1, wherein said light converging means has:

a converging lens which converts the light from said light source into substantially parallel light; and

light deflecting means of receiving the substantially parallel light which has been converted by said converging lens, and arbitrarily emitting said substantially parallel light so that the light which is to be converged onto said optical disk is converged onto said optical disk with being displaced by a predetermined degree in the direction that is substantially perpendicular to said track, or without being substantially

displaced.

3. An optical disk device according to claim 1 or 2, wherein said device further comprises controlling means of moving the light converged by said light converging means, at a predetermined speed in the direction that is substantially perpendicular to said track, and adjusting an amount of the light emitted by said light source, thereby erasing a signal mark which is already formed on said track.

4. An optical disk device according to claim 1 or 2, wherein said device further comprises controlling means of unevenly moving the light converged by said light converging means, in the direction that is substantially perpendicular to said track, thereby producing a region in which a time period when the converged light exists is short, and a region in which a time period when the converged light exists is long, and adjusting an amount of the light emitted by said light source, thereby erasing a signal mark which is already formed on said track, and forming a new signal mark on said track.

5. An optical disk device according to claim 2, wherein said light deflecting means is configured by: a crystal plate having an electrooptic effect; and electrodes which are formed in a predetermined symmetric pattern on a surface and a rear face of said crystal plate,

the substantially parallel light which has been converted by said converging lens is incident on a first side face of said

crystal plate, transmitted through said crystal plate, and emitted from a second side face of said crystal plate, said second side face being opposed to said first side face, and

the light emitted from said second side face is deflected on the basis of a level of a voltage which is applied between said electrodes.

6. An optical disk device according to claim 5, wherein the light incident on said first side face of said crystal plate forms an angle of 20 deg. or more to a normal of said first side face, and/or

the light emitted from said second side face of said crystal plate forms an angle of 20 deg. or more to a normal of said second side face.

7. An optical disk device according to claim 5, wherein the pattern in which said electrodes are formed is configured by two pairs of saw-tooth like patterns which are engaged with and insulated from each other,

voltages which are applied to adjacent electrodes of said two pairs of saw-tooth like patterns have opposite polarities, and

light which is transmitted said crystal plate is obliquely incident on a section of said crystal plate said section being substantially perpendicular to said surface and said rear face of said crystal plate including boundaries of said two pairs of saw-tooth like patterns.

8. An optical disk device according to claims 1 or 2, wherein said light converging means performs the light convergence so that, as said signal mark is shorter, a degree of deviating a beginning and an end of said signal mark, and/or a portion between the beginning and the end of said signal mark, from said track is larger.

9. An optical disk device according to claims 1 or 2, wherein said light converging means performs the light convergence so that said signal mark is formed on said optical disk, by using a signal modulation system in which minimum continuation of bit information code 0 is 1.

10. An optical disk having plural tracks, wherein,

in each of signal mark forming regions, each of lands, or each of grooves, a signal mark is formed with being positioned at any one of plural positions which are arranged in a direction that is substantially perpendicular tracks each of said signal mark forming regions surrounded by adjacent two of boarder lines which are between two said tracks on the signal surface, and which are substantially parallel to said tracks, and each of which substantially divides an area between adjacent tracks in two parts.

11. An optical disk according to claim 10, wherein said signal mark is formed so that, as said signal mark is shorter, a degree of deviating a beginning and an end of said signal mark, and/or a portion between the beginning and the end of said signal mark,

from said track is larger.

12. An optical disk according to claim 10 or 11, wherein said signal mark is formed on said optical disk, by using a signal modulation system in which minimum continuation of bit information code 0 is 1.

13. An optical disk device comprising:

a light source which emits light;

light converging means of converging the light from said light source onto a signal mark of said optical disk according to claim 10;

light detecting means of detecting light reflected from said optical disk; and

analyzing means of, based on a result of detection of said light detecting means, judging a degree of deviation of said signal mark from said track in the direction that is substantially perpendicular to said track, judging a position of said signal mark, and analyzing data recorded on said optical disk.

14. An optical disk device according to claim 13, wherein said analyzing means performs the judgment by using a portion of the light from said optical disk, said portion being on an outer peripheral side.

15. An optical disk device according to claim 13 or 14, wherein said device further comprises light branching means of branching the light reflected from said optical disk into a-light and b-light by means of a predetermined line corresponding to a tangential

direction of said track, and causing the a-light and the b-light to proceed to said light detecting means,

said light detecting means has a-light amount detecting means of detecting an amount of the a-light, and b-light amount detecting means of detecting an amount of the b-light, and

said analyzing means judges the deviation degree on the basis of a difference between the amount of the a-light and the amount of the b-light, and judges a length of said signal mark in a substantially tangential direction of said track on the basis of a sum of the amount of the a-light and the amount of the b-light.

16. An optical disk device according to claim 13 or 14, wherein said device further comprises light branching means of: branching the light reflected from said optical disk into light of an inner peripheral side of the reflected light, and light of an outer peripheral side of the reflected light; further branching the light of the outer peripheral side into a-light and b-light by means of a predetermined line corresponding to a tangential direction of said track; and causing the light of the inner peripheral side, the a-light and the b-light to proceed to said light detecting means,

said light detecting means has inner-periphery light amount detecting means of detecting an amount of the light of the inner peripheral side, a-light amount detecting means of detecting an amount of the a-light, and b-light amount detecting means of detecting an amount of the b-light, and

said analyzing means judges the deviation degree on the basis of a difference between the amount of the a-light and the amount of the b-light, and judges a length of said signal mark in a substantially tangential direction of said track on the basis of the amount of the light of the inner peripheral side, a sum of the amount of the a-light and the amount of the b-light, or a sum of the amount of the light of the inner peripheral side, and the sum of the amount of the a-light and the amount of the b-light.

17. An optical disk device according to claim 13 or 14, wherein said analyzing means judges a beginning of said signal mark when the sum or the amount of the light of the inner peripheral side is reduced or increased to substantially reach a predetermined value, judges an end of said signal mark when the sum or the amount of the light of the inner peripheral side is increased or reduced to substantially reach a predetermined value, and

reads that, when, in the beginning or the end of said signal mark, the difference is larger than a predetermined first value which is positive, it means that a data in the beginning or the end is a predetermined first data value; when the difference is smaller than a predetermined second value which is negative, it means that the data in the beginning or the end is a predetermined second data value; and, when the difference is not smaller than the second value and not larger than the first value, it means that the data in the beginning or the end is a predetermined third

data value.

18. An optical disk device according to claim 13 or 14, wherein said device further comprises light branching means of branching the light reflected from said optical disk into a-light, b-light, c-light, and d-light by means of a first line corresponding to a tangential direction of said track and a second line corresponding to the direction perpendicular to said track, and causing the a-light, the b-light, the c-light, and the d-light to proceed to said light detecting means,

the a-light and the c-light are in diagonal relationship in the reflected light, the b-light and the d-light are in diagonal relationship in the reflected light,

said light detecting means has a-light amount detecting means of detecting an amount of the a-light, b-light amount detecting means of detecting an amount of the b-light, c-light amount detecting means of detecting an amount of the c-light, and d-light amount detecting means of detecting an amount of the d-light, and

said analyzing means judges the deviation degree on the basis of a difference between a first sum of the amount of the a-light and the amount of the c-light and a second sum of the amount of the b-light and the amount of **the d-light**, and judges a length of said signal mark in a substantially tangential direction of said track on the basis of a sum of the first sum and the second sum.

19. An optical disk device according to claim 13 or 14, wherein said device further comprises light branching means of: branching the light reflected from said optical disk into light of an inner peripheral side of the reflected light, and light of an outer peripheral side of the reflected light; further branching the light of the outer peripheral side into a-light, b-light, c-light, and d-light by means of a first line corresponding to a tangential direction of said track and a second line corresponding to the direction perpendicular to said track; and causing the light of the inner peripheral side, the a-light, the b-light, the c-light, and the d-light to proceed to said light detecting means,

the a-light and the c-light are in diagonal relationship in the reflected light, the b-light and the d-light are in diagonal relationship in the reflected light,

said light detecting means has inner-periphery light amount detecting means of detecting an amount of the light of the inner peripheral side, a-light amount detecting means of detecting an amount of the a-light, b-light amount detecting means of detecting an amount of the b-light, c-light amount detecting means for detecting an amount of the c-light, and d-light amount detecting means of detecting an amount of the d-light, and

said analyzing means judges the deviation degree on the basis of a difference between a first sum of the amount of the a-light and the amount of the c-light and a second sum of the amount of the b-light and the amount of **the d-light**, and judges

a length of said signal mark in a substantially tangential direction of said track on the basis of the amount of the light of the inner peripheral side, the sum of the first sum and the second sum, or a sum of the amount of the light of the inner peripheral side and the sum of the first sum and the second sum.

20. An optical disk device according to any one of claims 13, 14, wherein said analyzing means judges a beginning of said signal mark when the sum or the amount of the light of the inner peripheral side is reduced to substantially reach a predetermined value, judges an end of said signal mark when the sum or the amount of the light of the inner peripheral side is increased to substantially reach a predetermined value,

reads that, when, in the beginning of said signal mark, the difference is larger than a predetermined first value which is positive, it means that a data in the beginning is a first predetermined data value; when the difference is smaller than a predetermined second value which is negative, it means that the data in the beginning is a predetermined second data value; and, when the difference is not smaller than the second value and not larger than the first value, it means that the data in the beginning is a predetermined third data value, and

reads that, when, in the end of said signal mark, the difference is larger than the first value, it means that a data in the end is the third data value; when the difference is smaller than the second value, it means that the data in the end is the

first data value; and, when the difference is not smaller than the second value and not larger than the first value, it means that the data in the end is the third data value.

21. A data recording method in which, in each of signal mark forming regions, each of lands, or each of grooves of an optical disk, light from an light source is converged onto said optical disk with selectively positioning a signal mark at any one of plural positions which are arranged in a direction that is substantially perpendicular to tracks thereby forming a signal mark on said optical disk, each of said signal mark forming regions surrounded by adjacent two of boarder lines which are between two said tracks on the signal surface of said optical disk, and which are substantially parallel to said tracks, and each of which substantially divides an area between adjacent tracks in two parts.

22. A data reproducing method in which light is converged onto a signal mark of said optical disk according to claim 10 or 11, light reflected from said optical disk is detected; based on a result of the detection, judging a degree of deviation of said signal mark on each of tracks of said optical disk, from said track in the direction that is substantially perpendicular to said track, judging a position of said signal mark, and analyzing data recorded on said optical disk to reproduce the data.